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which are travelling at the same period from Daūria to Western Europe."

Gätke's list is copiously and interestingly annotated, the annotations often occupying several pages, the records being in most instances very fully and satisfactorily given. The nomenclature, however, is antiquated, being for the most part that of Naumann, and hence dating almost from Gätke's boyhood. In the English translation the equivalent modern names are given in footnotes, when different from those used in the text, as is usually the case. In a few instances the identifications may be open to question, especially in some of the few cases where the species was only observed and not actually taken.

With all its imperfections 'Heligoland' is a book of great interest and value, Part III being a particularly useful contribution to the literature of ornithology. It is also a work that is likely to do much harm, for it is its sensational and inaccurate parts especially that find their way into the current literature of the day, and particularly into magazines and books devoted to the popularization of natural history.

A REVISION OF THE NORTH AMERICAN HORNED OWLS WITH DESCRIPTION OF A NEW SUBSPECIES.

BY WITMER STONE.

It is not a pleasant task to overthrow a scientific name long in use, but under certain circumstances it seems unavoidable, and the case of *Bubo virginianus subarcticus* (Hoy) is an instance of this kind.

Some years ago while engaged in cataloguing the Owls in the collection of the Academy of Natural Sciences of Philadelphia I found the type specimen of "*Bubo subarcticus* Hoy." The bird was mounted, and on the under side of the stand were written the

following data in the hand of John Cassin: " *Bubo subarcticus* Hoy, Racine, Wisconsin. Original specimen described by Dr. Hoy and presented by him 1853. J. C." The description is in the 'Proceedings' of the Academy for 1852, p. 211, and evidently refers to the specimen in question.

This specimen at once struck me as being much lighter in color than any examples of *subarcticus* that I had examined; in fact it seemed nearer to the description of *arcticus* as given in the books. Not having any specimens of undoubted *arcticus* for comparison, and the figure of this form in 'Fauna Boreali-Americana' being still lighter than the specimen in hand, I let the matter stand until I had an opportunity to make direct comparison.

Recently I showed the specimen to Mr. Leverett M. Loomis, who agreed with me that it must be very close to *arcticus*. A few days later, while together in Washington, we examined specimens of *arcticus* in the National Museum Collection and concluded that the type of *subarcticus* was identical with them.

To make matters sure, however, I sent the type specimen to Mr. Robert Ridgway, on my return to Philadelphia, and after making a careful comparison, he writes me: "The bird is unquestionably referable to *arcticus* Swainson, agreeing closely with specimens in our collection from Winnipeg. It is darker than the specimen described and figured in the 'Fauna Boreali-Americana,' which seems to have been an exceptionally light-colored example."

As a result of this investigation the name "*Bubo subarcticus* Hoy" will have to become a synonym of *Bubo virginianus arcticus* (Swainson), leaving the form from the Great Plains and southwestern United States, which was formerly known as *Bubo virginianus subarcticus* (Hoy), to be renamed. So far as I can ascertain, the only other name that has been proposed for the western Horned Owl is *pacificus* Cassin, 'Illustrations of the Birds of California, Texas,' etc., p. 178.

Cassin here recognizes three varieties of *Bubo virginianus*,—(1) *atlanticus*, the eastern bird, (2) *pacificus*, the western, and (3) *arcticus* Swains., the northern form. He very properly suggests that *subarcticus* Hoy is a synonym of *arcticus* Swains., which suggestion has been ignored by subsequent writers. The names *atlanticus* and *pacificus* were here proposed for the first time. The

former is of course a synonym pure and simple of *B. virginianus* (Gmel.), while under *pacificus* he apparently intended to include all western Horned Owls known to him and not coming under *arcticus* Swains. The diagnosis of *pacificus*, however, clearly applies to the light-colored owls. Mr. Ridgway apparently noticed this fact, and although he had at first used *pacificus* Cass. for the dark owl of the Northwest and Rocky Mountain region, he afterwards proposed the name *saturatus* for this form.

According to the laws of nomenclature *pacificus* Cass. cannot be ignored, and while its application to the light-colored western Horned Owls seems sufficiently clear, the separation of the dark western bird as *saturatus* Ridgw. emphasizes it still more.

Just here, however, there is another point to consider, *i.e.*, whether there are not two well marked races of these light-colored birds included under the old "*subarcticus*."

I have for some years past noticed that the Horned Owls from southern California differed from the light-colored examples from farther east in their uniformly smaller size and the increased mottling on the feathers of the tarsus. These differences I think are sufficiently well marked to warrant the separation of the two forms.

The name *pacificus* Cass. (Dwarf Horned Owl) I would restrict to the small southern California subspecies, as Cassin calls particular attention to the general small size of examples of this variety, and furthermore had California specimens in the series that he studied. For the large form from the Great Plains I would propose the name

***Bubo virginianus occidentalis.* WESTERN HORNED OWL.**

The several races would then be distinguished as follows, using in part the phraseology of Ridgway's 'Manual.'

a'. Color darker, with dusky markings more extensive or more numerous. Plumage much mixed with tawny or ochraceous.

b'. Moderately dark, face mostly rusty and plumage with an excess of tawny rufous. . . . *Bubo virginianus* (Gmel.).

b''. Extremely dark, face usually sooty brown mixed with whitish, plumage with less tawny, sometimes none.

B. virginianus saturatus Ridgw.

a''. Color lighter, gray and buff tints predominating over the darker markings; lower parts whiter.

b'. General aspect above grayish with more or less buffy admixture; dark markings below distinct.

c'. Size small, w. 13 in., tarsi, strongly mottled.

B. virginianus pacificus Cass.

c''. Size large, w. 16 in., tarsi with mottling much less distinct. *B. virginianus occidentalis* subsp. nov.

b''. General aspect above white, ground color faded, beneath pure white with dark markings restricted.

B. virginianus arcticus (Swains.).

A specimen of *B. virginianus pacificus* Cass. before me (No. 27905, coll. Acad. Nat. Sci. Phila., San Bernardino, Cal., April, 1887, ♂, coll. by R. B. Herron) measures: wing, 12.95; culmen, 1.48; tarsus (to insertion of hind toe), 1.80; middle claw to sheath, .95.

The type of *B. virginianus occidentalis* (No. 26435, coll. Acad. Nat. Sci. Phila., Mitchell Co., Iowa, winter, 1880, coll. W. L. Abbott), probably a female, measures: wing, 16; culmen, 1.80; tarsus (to insertion of hind toe), 2.50; middle claw to sheath, 1.25.

The markings of *pacificus*, especially beneath, seem to average darker than in *occidentalis*, in such specimens as I have seen. The exact range of the two I cannot ascertain without examining a larger series.



RECENT LITERATURE.

The 'Birds' of 'The Royal Natural History.'¹—The last half of Volume III of 'The Royal Natural History' is devoted to Birds, Volumes

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